REMARKS

Claims 1-3, 5-6, 8-9, and 11-12 have been cancelled. Claims 4, 7, and 10 have been amended. New claim 13 is added. Claims 4, 7, 10, and 13 are now pending in this application. Support for the amendments is found in the existing claims and the specification as discussed below. Accordingly, the amendments do not constitute the addition of new matter. Applicant respectfully requests the entry of the amendments and reconsideration of the application in view of the amendments and the following remarks.

Rejection under 35 U.S.C. § 112, second paragraph

Claim 10 is rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 has been amended to recite active, positive steps. In view of Applicants' amendment, withdrawal of the above ground of rejection is respectfully requested.

Claim 10 is rejected under 35 U.S.C. § 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process.

This rejection is believed to be overcome by amendment of claim 10. Reconsideration and withdrawal are respectfully requested.

Rejection under 35 U.S.C. § 103(a)

Claims 4, 7, and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Saiki, et al. (PNAS vol. 86, pp. 6230-6234, 1989) in view of Ness, et al. (U.S. 6,815,212 B2)

As pointed out by the Examiner, Saiki, et al. disclose homopolymer-tailed oligomer attachment to nylon membrane by UV irradiation, and Ness, et al. disclose that nucleic acid can be immobilized onto a solid support such as nylon or nitrocellulose using UV radiation. Neither Saiki, et al. nor Ness, et al. disclose the plastic material of the claimed invention.

That is, the plastic substrate material disclosed by Saiki, et al. and Ness, et al. is a primary amine-containing substrate such as nylon. Furthermore, at the time of the claimed invention, it was only known that UV radiation could promote crosslinking of a nucleic acid to a plastic having primary amines, not directly to the plastics recited in Applicants' claims 4 and 7. For example, Rovera, et al. (U.S. Patent No. 6,221,635), cited in the Office Action of February 8,

2002, teach that nylon membrane is used "because UV crosslinking is known to activate thymine bases in DNA which then covalently couple to primary amines present in the nylon" (col. 29, lines 1-3). While the Examiner has pointed to col. 47, lines 38-43 of Ness, et al. for teaching other substrate materials including polystyrene microbeads and glass, Ness, et al. in this same section go on to teach coating of such substrates with a material such as "an amine polymer such as polyethylene (imine), acrylamide, amine dendrimers, etc" (col. 49, lines 42-43). Thus, in contrast to Applicants' claimed invention, Ness, et al teach either use of a substrate containing primary amines such as nylon, or application of a coating to a substrate to provide primary amines. Neither Saiki, et al. nor Ness, et al. disclose a substrate which "consists of a plastic selected from the group consisting of polyethylene, polystyrene, polycarbonate, polypropylene, phenol resin, epoxy resin, polycarbodiimide resin, polyvinyl chloride, polyvinylidene fluoride, polyethylene fluoride, polyimide, and acrylate resin" as recited in both claims 4 and 7. Accordingly, the combination of Saiki, et al. and Ness, et al. do not teach all of the elements of the invention as presently claimed.

In view of the knowledge in the art at the time of the claimed invention, one of ordinary skill in the art would not be motivated to make a substrate using only a plastic selected from the group consisting of polyethylene, polystyrene, polycarbonate, polypropylene, phenol resin, epoxy resin, polylcarbodiimide resin, polyvinyl chloride, polyvinylidene fluoride, polyethylene fluoride, polyimide, and acrylate resin, based upon the teaching of the cited references which are directed to materials which contain primary amines such as nylon or the use of a coating material to provide primary amines on the surface.

Accordingly, the present inventors have found that firm immobilization of a nucleic acid on a plastic having no primary amine can be made by irradiation with an electromagnetic wave. Based upon disclosures by Saiki, et al. and Ness, et al., one of ordinary skill in the art would not have expected immobilization of a nucleic acid to a substrate lacking a primary amine. In conclusion, it is submitted that the present claims are patentable over Saiki, et al in view of Ness, et al.

In view of Applicants' amendments and arguments, reconsideration and withdrawal of this ground of rejection is respectfully requested.

CONCLUSION

In view of Applicants' amendments to the claims and the foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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